



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.: 10/569,958 Group Art Unit: 3768
Filing Date: November 3, 2006 Examiner: Hien Ngoc Nguyen
Applicant: Kristine FUIMAONO
Title: METHOD AND DEVICE FOR VISUALLY SUPPORTING AN
ELECTROPHYSIOLOGY CATHETER APPLICATION IN THE
HEART
Attorney Docket: 32860-001018/US

December 9, 2010

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REASONS FOR PRE-APPEAL BRIEF REQUEST FOR REVIEW

Sir:

Concurrent with the filing of a Notice of Appeal and a Request for Pre-Appeal Review, the following remarks are submitted in connection with the above-identified patent application.

REJECTIONS FOR WHICH PRE-APPEAL BRIEF REVIEW IS REQUESTED

Claims 1-3, 5, 8-9, 12, 14 and 19-24 are rejected under 35 U.S.C. § 103(a) as being unpatentable over US 6,556,695 to Packer ("Packer") and in view of US 2002/0176608 to Rose ("Rose"). Claim 4 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Packer in view of Rose and further in view of "A System for Multimodality Image Fusion" to Hemler *et al.* ("Hemler") and further in view of DE 19953308 to Williams *et al.* ("Williams"). Claims 13, 18 and 25-26 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Packer in view of Rose, further in view of Hemler and Williams. Claims 10-11 and 17 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Packer in view of Rose and further in view of US 2003/0018251 to Solomon *et al.* ("Solomon"). Claims 15-16 are rejected under 35 U.S.C. § 103(a) as being

unpatentable over Packer in view of Rose and further in view of Solomon. Claim 6 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Packer in view of Rose and further in view of US 2002/0087329 to Massaro ("Massaro"). Claim 7 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Packer in view of Rose, in view of US 6,572,476 to Shoji et. al. ("Shoji") and further in view of US 2004/0233217 to Chiu et al. ("Chiu"). Applicants respectfully traverse these rejections for the reasons detailed below.

ARGUMENTS

The Examiner continues to reject independent claims 1, 12, 19 and 22 based on the combination of the teachings of Packer and Rose.

Independent claim 1 recites, among other things, a method of visually supporting an electrophysiology catheter application in the heart, comprising: visualizing electroanatomical 3D mapping data, provided during the performance of the catheter application, of an area of the heart to be treated; [and] extracting a 3D surface profile of objects in the area to be treated from the 3D image data by segmentation.

It is alleged in the Office Action that FIG. 1, col. 2, lines 14-60, col. 11, lines 33-48 and col. 12, lines 28-61 of Packer teach "visualizing electroanatomical 3D mapping data, provided during the performance of the catheter application, of an area of the heart to be treated," as recited in independent claim 1.

However, the Applicants submit that Packer fails to disclose or even suggest any "electroanatomical 3D mapping data," as required by claim 1. Fig. 1 of Packer merely illustrates a MRI apparatus. Col. 3, lines 51-67 of Packer relate to the imaging modality for producing the high resolution model (CT, MRI, ultrasound). Col. 2, lines 14 -60 of Packer disclose acquiring image data of the subject anatomy and reconstructing an image which is a high resolution model of the subject anatomy; performing a medical procedure in which the subject anatomy is imaged in real-time by acquiring low resolution images at a high frame rate; registering the high resolution model of the subject anatomy with each acquired low resolution image; and displaying images of the registered high resolution model of the anatomy. As is understood, the cited

sections of Packer do disclose or even suggest any "3D mapping data," as recited in independent claim 1.

It is further alleged in the Office Action at Page 4 that col. 5, line 63-col. 6, line 48 of Packer disclose "extracting a **3D surface profile** of objects in the area to be treated from the 3D image data by segmentation," as recited in independent claim 1. (Emphasis Added)

However, the cited sections of Packer are directed to the process of rendering acquired 3D surfaces on a 2D display. Further, these sections of Packer are directed to processing the acquired 3D image data into a 4D model from which 3D heart wall surfaces can be rendered. This process of rendering acquired 3d surfaces involves segmenting of the heart walls and tiling of the surfaces of the segmented heart wall images. However, no "3D surface profile" is extracted. Packer fails to teach or even suggest "extracting a 3D surface profile," as recited in independent claim 1.

The Examiner admits that Packer does not explicitly teach "3D surface profile," as required by claim 1, and relies on the teachings of Rose to overcome the noted deficiencies of Packer.

Particularly, the Examiner alleges that paragraphs [0005-0007] of Rose teach "extracting a 3D surface profile," as recited in independent claim 1.

Rose is directed to a non-contact surface profiling method using light. Rose focuses primarily upon road surfaces. However, as per Rose, the discussion applies equally to any surface intended for vehicular traffic. According to Rose, these surfaces include, but are not limited to, highways, roads, ramps, parking, and service areas for ground vehicles (trucks, cars, busses, etc.), runways, taxiways, parking aprons, and hangar floors for aircraft, and tracks and roadbeds for railroads. The terms "road" and "road surface," as used herein, refer specifically to "a road" and "a surface of a road," respectively, and refer generally to "a way or course for ground, air, or rail vehicles" and "a surface of a way or course," respectively. The sections of Rose cited by the Examiner are reproduced below.

[0005] In the industry, road condition is measured by profiling. Profiling is the obtaining of a profile or series of profiles of the road surface. A profile is substantially a cross-sectional view of the surface of the road. A profile depicts the contours of the road,

thereby demonstrating the form, wear, and irregularities of the road surface.

[0006] A transverse profile is a cross-sectional view of the road surface or a portion thereof taken substantially perpendicular to the direction of travel. A transverse profile may be used to depict rutting, potholes, scaling, chipping, and edge damage of the road surface over time.

[0007] A longitudinal profile is a cross-sectional view taken substantially in the direction of travel. A longitudinal profile may be used to depict the grade, waviness, and roughness of the road surface. Longitudinal profiles may be used to monitor the wear of the road surface over time to facilitate maintenance planning.

(Emphasis Added)

Absolutely, nowhere in Rose is it mentioned that the techniques disclosed therein can be used in the field of medical imaging. Nowhere in Rose is it disclosed that the device disclosed therein can be modified to image living organisms, or, rather, extract 3D surface profiles of organs of living organisms.

Applicants submit that the Examiner's rejection of the claims is based on improper hindsight reconstruction gleaned from viewing Applicants' Specification and reading the claims, and not on a reason with some rational underpinnings for combining Packer and Rose. Rose does not appear to be interested in the 3D surface profiling of organs of living organisms. The Examiner has provided no evidence or reasoning that Rose appears to be interested in producing 3D surface profiles of organs of living organisms.

Accordingly, the combination¹ of Packer and Rose is not an obvious combination of prior art elements or a simple substitution of one known element for another, leading to predictable results, or any other indicator of potential obviousness. Rather the extensive amount of modification needed is suggested nowhere in the cited references or by the Examiner, and is born from use of impermissible hindsight reconstruction in view of the Applicants' Specification and reading of the claims. (See, for example, *Ex parte* Kobayashi, Appeal 2009-000884, Application 10/031,282).

¹ On numerous past occasions, the Examiner has indicated that his rejection is not based on the literal incorporation of the device/method of Rose in the device/method of Packer, but is based on the modification of the Packer device/method using the teachings of Rose of obtaining 3D surface profile.

Applicants submit that for all the above reasons, the alleged combination of Packer and Rose fails to render the limitation of independent claim 1, and the somewhat similar features recited in independent claims 12, 19 and 22 obvious to one of ordinary skills in the art.

With respect to dependent claims 2-11, 13-18, 20-21 and 23-26, Applicants submit that claims 2-11, 13-18, 20-21 and 23-26 are dependent directly or indirectly on independent claims 1, 12, 19 and 22, and independent claims 1, 12, 19 and 22 are shown to be patentable at least for the reasons given above. Further, any combination of Hemler, Williams, Solomon, Massaro, Shoji and/or Chiu fails to overcome the noted deficiencies of Packer and/or Rose. Therefore, any combination of Packer, Rose, Hemler, Williams, Solomon, Massaro, Shoji and/or Chiu fails to render the limitations of dependent claims 2-11, 13-18, 20-21 and 23-26 obvious to one of ordinary skill in the art.

In light of the above, Applicants respectfully request the rejection of claims 1-26 be withdrawn.

CONCLUSION

In view of the remarks, reconsideration and withdrawal of the current rejections in connection with the present application is earnestly solicited.

Should there be any outstanding matters that need to be resolved in the present application, the Pre-Appeal Brief Review Board is respectfully requested to contact the undersigned at the telephone number below. If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 08-0750 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

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